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EXAMINER

NAFF, DAVID M

ART UNIT PAPER NUMBER

1651

DATE MAILED: 10/14/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/929,736

Applicant(s)

SCHUELLER ET AL.

Examiner

David M. Naff

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 30 July 2004.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-38 and 116-132 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-38 and 116-132 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- 1) ☐ Certified copies of the priority documents have been received.
 - 2) ☐ Certified copies of the priority documents have been received in Application No. _____.
 - 3) ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

An amendment of 7/30/04 amended claims 1, 35 and 116-125, and added new claims 126-132.

Claims examined on the merits are 1-38 and 116-132, which are all
5 claims in the application.

The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

Claim Rejections - 35 USC § 112

Claims 1-38 and 126-132 are rejected under 35 U.S.C. 112, first
10 paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

15 As set forth in the previous office action of 1/29/04, the specification fails to support any non-planar stamp as required by claim 1.

Response to Arguments

Applicants point to specific structures of non-planar stamps
20 disclosed in the specification and the specification disclosing that the stamp can have practically any shape as providing support. However, the specific structures do not support the much broader limitation of any non-planar stamp. Additionally, the disclosure of practically any shape does not support selecting "non-planar" as a
25 limit of shapes that can be used. The disclosure of practically any

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shape indicated that a planar stamp was to be part of the invention.

The concept of limiting the stamp to any stamp other than a planar stamp was not in the specification when filed. While every last

detail may not have to be described as set forth in *In re Howarth* and

5 *In re Gay*, when the inventive concept is changed from that originally described, they must be sufficient detail to support that this was part of the invention as originally filed. Applicants may not use described species to extrapolate to substantially different forms.

Claim Rejections - 35 USC § 112

10 Claims 33-36 and 116-132 are rejected under 35 U.S.C. 112, first paragraph, because the specification, while being enabling for carrying out the process using a tubular stamp containing a lumen having a stamping surface on its inside surface, placing a substrate within the lumen of the tubular stamp and modulating dimensions of the

15 tubular stamp to cause the stamping surface to contact the substrate, and using a tubular substrate containing a lumen by placing a tubular stamp containing an exterior stamping surface within the lumen of tubular substrate and modulating the dimensions of the tubular stamp to cause the exterior stamping surface to contact the interior surface

20 of the substrate lumen, does not reasonably provide enablement for other relationships between a stamp lumen and substrate or a stamp and substrate lumen. The specification does not enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make the use the invention commensurate in scope with

25 these claims.

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As set forth in the previous office action of 1/29/04, when the stamp and substrate contain a lumen, the specification is enabling for only embodiments as set forth above. It would be uncertain how a lumen can otherwise be used to accomplish patterning a surface. The
5 specification and claims must be commensurate in scope.

Response to Arguments

Applicants point to the specification (Figure 9, page 25, lines 27-29 and page 26, lines 1-4) as disclosing channels of the stamp. However, the channels are not the lumen described in the
10 specification, and are different from the lumen. Figure 9 and the portions of the specification referred to describe the channels as being part of the embodiment containing a lumen in addition to the channels. When a lumen is required, there is enablement for only the lumen being part of a structure as shown by Figure 9 and as described
15 in the specification.

Claim Rejections - 35 USC § 112

Claims 1-38 and 116-132 rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the
20 invention for the type of reasons in the previous office action of 1/29/04 and for reasons herein.

Claims 1-38 and 126-132 are confusing and unclear by "non-planar stamp" in claim 1 being uncertain as to meaning and scope. The specification fails to recite and define "non-planar stamp". It is
25 uncertain as to whether this term is requiring a stamp having a curved

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surface or a surface that contains raised portions and channels, or both. The line of demarcation between the form of a stamp that is non-planar and planar is uncertain. It would be uncertain as to when one is using a non-planar stamp as compared to a planar stamp.

5 Claims 33-36, 116-122 and 126-132 that require the stamp to contain a lumen and claims 123-125 that additionally require the substrate to contain a lumen are unclear as to the location of the lumen with respect to entire structure of the stamp or substrate, and are unclear how the stamp lumen and substrate lumen function in
10 relation to the substrate or stamp, respectively, to accomplish patterning in the process of patterning a surface. In view of the specification and drawings, when having a lumen, the stamp or substrate is of tubular form containing a lumen, and the stamping surface is on the inside of the lumen when a tubular substrate is
15 placed inside the lumen of the tubular stamp, or the stamping surface is on the outside of the tubular stamp when the tubular stamp is placed inside the lumen of a tubular substrate. When requiring the stamp or substrate to have structure such as a lumen, the claims should recite sufficient structure to make clear where the stamp or
20 substrate contains the lumen relative to the whole structure of the stamp or lumen. Furthermore, the claims should be clear how the lumen of the stamp and substrate are combined, and the lumen of the substrate and stamp (claims 123-125) are combined to accomplish patterning a surface. Additionally, since claims 123-125 depend on
25 claim 116 that require the stamp to have a lumen, it should be clear

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how the lumen of the stamp functions in combination with the lumen of the substrate when carrying out the patterning of a surface.

Claims 34 and 118 are confusing by requiring walls of the stamp defining a lumen to be flat. It is not seen how a lumen can have flat
5 walls since a lumen is circular. Additionally, alternatively requiring walls of the lumen to be curved is confusing since the walls of the lumen are inherently curved due to circular form of a lumen.

Claims 35 and 119 are unclear as to the relationship of the tubular structure of the stamp to the lumen of the stamp of claims 33
10 and 116. Is the stamp in the form of a tube having a lumen or is there some other relationship?

In claim 38, it would be uncertain as to substrate structure that is open, partially closed or closed. Being open, partially closed or closed will be relative and subjective when there is no structure
15 defined that is capable of being open, partially closed or closed.

Claim 131 is unclear and an improper dependent claim by being multiple dependent and depending on another multiple dependent claim, and by not being alternatively multiple dependent.

In claim 132, "balloon-like" is uncertain as to meaning and
20 scope. Being "like" a balloon is relative and subjective, and depends on individual interpretation.

Response to Arguments

Applicants urge that from the dictionary, one would understand non-planar to mean that the stamp has a three-dimensional cross-
25 section as opposed to a two-dimensional cross-section. However, a

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planar stamp can also have a three-dimensional cross-section since all structures require a third dimension, and the claims do not define the part of the stamp that is non-planar. It would be uncertain as to the line of demarcation between a planar and non-planar stamp within scope
5 of the present claims. The present specification and claims are unclear as to the difference in stamp structure required for a planar stamp to become non-planar stamp.

In regard to the location of the lumen, applicants refer to channels of by Figure 9 and described in the specification on pages 25
10 and 26. However, the channels are not the lumen described in the specification, and in Figure 9 and the description of the specification relating to Figure 9, the channels are part of a structure containing a lumen that is one of the two scenarios set forth above in the rejection.

15 In regard to walls of a lumen being flat or curved, applicants urge that a lumen can be rectangular. However, the dictionary (Webster's Ninth New Collegiate Dictionary) defines lumen as being the cavity of a tubular organ or the bore of a tube. Being a tube or tubular, means being round and not rectangular.

20 Applicants state that claims 35 and 119 have been amended. However, the amendment does not make clear the relationship between the tubular structure and the lumen.

In regard to the structure of claim 38 not defining structure capable of being open, partially closed or closed, applicants urge
25 that this is clear from the specification. However, the claims and

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not the specification define metes and bounds of the claims, and the claims must be clear and definite without relying on the specification for setting forth metes and bounds of the claims.

Claim Rejections - 35 USC § 102

5 Claims 1-7, 9-11, 30, 31 and 37 are rejected under 35 U.S.C. 102(b) as being anticipated by Maracas et al (5,669,303) for reasons in the previous office action of 1/29/04 and for reasons herein.

 The claims are drawn to a method of patterning a surface by providing a non-planar stamp having a stamping surface, disposing a
10 substrate proximate to the stamping surface and modulating the dimensions of the stamp to place the stamping surface in contact with the substrate.

 Maracas et al disclose stamping a surface with a flexible stamp by using pressure to cause the flexible stamp to change shape and
15 contact a surface to be stamped.

 Changing the shape of the flexible stamp of Maracas et al modulates dimensions of the stamp, and the method of Maracas et al is the same as presently claimed. As shown by Figure 2, the stamp of Maracas et al is non-planar since it contains raised and recessed
20 portions. Additionally, the stamp is non-planar when the flexible stamp bends prior to contact with the surface being stamped.

Response to Arguments

 Applicants urge that the claims require a non-planar stamp, and Maracas et al disclose only planar stamps. However, Figure 2 of
25 Maracas et al shows a stamp that is non-planar since it contains

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raised and recessed portions. The stamp of Maracas et al is additionally non-planar when the flexible stamp bends prior to contact with the surface being stamped. The claims do not specify when the stamp is non-planar. The present claims do not require the specific
5 embodiments depicted by Figures 1A-1F and 2 referred to by applicants as showing a different stamp.

Claim Rejections - 35 USC § 103

Claims 1-7, 9-13, 24-26, 30-32, 37, 38 and 126-132 are rejected under 35 U.S.C. 103(a) as being unpatentable over Maracas et al ('303)
10 in view of Whitesides et al (6,180,239 B1), and if necessary in further view of Singhvi et al (5,776,748) for reasons in the previous office action of 1/29/04 and for reasons herein.

The invention and Maracas et al are described above.

Whitesides et al disclose patterning a surface by using a non-
15 planar stamp that can be obtained by deforming a flexible planar stamp so as to be non-planar (col 11, lines 11-13).

It would have been a matter of obvious choice depending on individual preference and convenience to deform the flexible planar stamp of Maracas et al to be non-planar as suggested by Whitesides et
20 al since it would have been expected that a flexible non-planar stamp can be used for stamping by changing the shape of the stamp as disclosed by Maracas et al. Deforming a flexible stamp to obtain a non-planar stamp would have resulted in the stamp dimensions being modulated prior to disposing the substrate in claim 2. Whitesides et
25 al disclose (col 9, lines 35-50) deforming the stamp prior to

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stamping, and would have further suggested deforming the stamp prior to disposing the substrate. If needed, Singhvi et al would have further suggested a non-planar stamp (col 2, lines 6 and 34 and col 5, line 25).

5 **Response to Arguments**

Applicants urge that the invention has a novel feature of using a non-planar stamp. However, as set forth above, the stamp of Maracas et al can be non-planar. In any event, if the stamp is planar, it would have been obvious from Whitesides et al, and if needed Singhvi et al, to make the stamp of Maracas et al non-planar.

Applicants urge that the stamp of Whitesides et al is planar. However, the stamp clearly has a non-planar surface and is described by Whitesides et al as being non-planar.

Applicants urge that when Singhvi et al mentions non-planar, this is in regard to the article to be patterned rather than the stamp. However, if the article surface stamped is non-planar, the stamping surface will also have to be non-planar, or otherwise stamping of the article surface will be uneven.

Claim Rejections - 35 USC § 103

20 Claims 8 and 27-29 are rejected under 35 U.S.C. 103(a) as being unpatentable over the references as applied to claims 1-7, 9-13, 24-26 30-32, 37, 38 and 126-132 above, and further in view of Kumar et al (5,512,131) for reasons in the previous office action and for reasons herein.

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Claim 8 requires exposing the substrate to electromagnetic radiation through the stamp, and a portion of the stamp is opaque to the radiation. Claims 27-29 require removing the stamp and using a second stamp.

5 Kumar et al disclose using electromagnetic radiation when stamping to put patterns on surfaces (col 3, line 63, col 4, lines 64-65, col 14, lines 33-37, col 16, line 27, col 18, lines 23-25 and col 20, lines 34-35) to convert a species from one state to another. Further disclosed is the use of second stamp (col 3, lines 8-15) to
10 provide a second species.

It would have been obvious to pass electromagnetic radiation through the stamp of Maracas et al onto the substrate being stamped to obtain the function of electromagnetic radiation as disclosed by Kumar et al to convert a species from one state to another. Having a
15 portion of the stamp opaque would have been obvious to control the where the electromagnetic radiation contacts the substrate.

It would have been further obvious to use in Maracas et al a second stamp as taught by Kumar et al to provide a second species on the substrate. Furthermore, the disclosure of Whitesides et al (col
20 9, lines 1-10) of contacting the stamp with a surface in a first orientation, removing the stamp, rotating the stamp and reapplication of the stamp to the surface to obtain a grid pattern would have further suggested removing the stamp and applying a second stamp when a grid pattern is desired. If needed, Singhvi et al would have
25 further suggested using a second stamp (col 22, lines 46-59).

Response to Arguments

Applicants urge that the references do not suggest a non-planar stamp. However, as set forth above, a non-planar stamp is suggested by Maracas et al, Whitesides et al, and if needed Singhvi et al, and
5 Kumar et al is not needed to suggest a non-planar stamp. In any event, the figures of Kumar et al clearly show a non-planar stamp.

Applicants urge that Kumar et al suggest that using a non-planar stamp will create problems. However, these problems did not deter Kumar et al from using a non-planar stamp since the figures of Kumar
10 et al clearly show a non-planar stamp.

Claim Rejections - 35 USC § 103

Claims 14-23, 33-36 and 116-119 are rejected under 35 U.S.C. 103(a) as being unpatentable over the references as applied to claims 1-7, 9-13, 24-26 30-32, 37, 38 and 126-132 above, and further
15 in view of Anderson et al (6,645,432 B1) for reasons in the previous office action and for reasons herein.

Claims 14-23 require passing fluid through channels contained by the stamping surface. Claims 33-36 and 116-119 require the stamp to contain a lumen.

20 Anderson et al disclose stamping patterns on a surface using a stamp containing channels through which fluid is passed. For example, see col 5, line 34 to col 6, line 16.

It would have been obvious to provide the stamp of Maracas et al with channels containing fluid to obtain the function of the fluid to
25 form a pattern as disclosed by Anderson et al. Channels in the stamp

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of Anderson et al will inherently contain a lumen as required by claims 33-36 and 116-119 since certain channels are of tubular form.

Response to Arguments

As set forth above, a non-planar stamp is suggested by the
5 references.

Applicants urge that the stamp of Anderson et al is made of an elastomeric material so the stamping surface can conform to the surface being stamped of a variety of shapes. However, this supports that Anderson et al is using a non-planar stamp since an elastomeric
10 material that is flexible enough to conform to a variety of shapes will not be perfectly planar due to its flexibility.

Conclusion

Claims 120-125 are free of the prior art.

THIS ACTION IS MADE FINAL. Applicant is reminded of the
15 extension of time policy as set forth in 37 CFR 1.136(a).

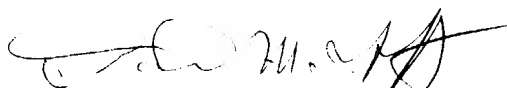
A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after
20 the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX
25 MONTHS from the mailing date of this final action.

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Any inquiry concerning this communication or earlier communications from the examiner should be directed to David M. Naff whose telephone number is 571-272-0920. The examiner can normally be reached on Monday-Friday 9:30-6:00.

5 If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mike Wityshyn can be reached on 571-272-0926. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be
10 obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see [http://pair-](http://pair-direct.uspto.gov)
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David M. Naff
Primary Examiner
Art Unit 1651

20 DMN
10/8/04